

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1-24. (Canceled.)

25. (Currently Amended) Process for the treatment of wooden elements, said process comprising the following steps:

- a) conditioning said wooden elements to reduce their moisture content; and
- b) performing one of the following sequences of steps selected from the group consisting of at least the sequence of steps b1) to b4) or at least the sequence of steps bb1) to bb2);

said sequence of steps b1) to b4) at least comprising:

b1) impregnating the wooden elements obtained from step a) with at least one water-borne wood preservative,

b2) heating the wooden elements obtained from step b1) at a temperature of at least 51° C, to fix said wood preservative(s) in said wooden elements;

b3) impregnating the wooden elements obtained from step b2) with a solution comprising a cross-linkable polymer having cross-linkable polymerizable-reactive groups having a reactive double bond, identical or different selected from the group consisting of an allyl group, a vinyl group, an acrylate group

and a methacrylate group, that will can form a cross-linked  
polymer under ~~polymerizing~~ cross-linking condition in the  
absence of a thermo-initiator, and

b4) subjecting the wooden elements obtained from step b3) to  
~~polymerizing~~ cross-linking condition ~~in the absence of a~~  
~~thermo-initiator to polymerize~~ to cross-link said reactive  
group(s);

said sequence of steps bb1) to bb2) at least comprising:

bb1) impregnating the wooden elements obtained from step a)  
with a mixture comprising at least one water-borne wood  
preservative and ~~polymerizable~~ cross-linkable polymer having  
cross-linkable reactive groups ~~having a reactive double bond,~~  
~~identical or different~~ selected from the group consisting of an  
allyl group, a vinyl group, an acrylate group and a methacrylate  
group, that will can form a cross-linked polymer under  
~~polymerizing~~ cross-linking condition in the absence of a  
thermo-initiator, and

bb2) heating the wooden elements obtained from step bb1) in  
the absence of a thermo-initiator at a temperature of at least  
51°C to fix said wood preservative(s) and to ~~polymerize~~ cross-  
link said reactive groups.

26. (Currently Amended) Process according to claim 25, wherein the process  
comprises the following steps:

- a) conditioning said wooden elements to reduce their moisture content; and
- b1) impregnating the wooden elements obtained from step a) with at least one water-borne wood preservative,
- b2) heating the wooden elements obtained from step b1) at a temperature of at least 51° C, to fix said wood preservative(s) in said wooden elements,
- b3) impregnating the wooden elements obtained from step b2) with a ~~polymerizing~~ solution comprising a cross-linkable polymer having cross-linkable polymerizable-reactive groups having a reactive double bond, identical or different selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group, that will-can form a cross-linked polymer under ~~polymerizing~~ cross-linking condition, and at least one water-borne wood preservative, identical to or different than the one of step b1), and
- b4) subjecting the wooden elements obtained from step b3) to ~~polymerizing~~ cross-linking condition to ~~polymerize~~ cross-link said reactive group(s).

27. (Previously Presented) Process according to claim 25, wherein the process comprises the following steps:

- a) conditioning said wooden elements to reduce their moisture content;
- bb1) impregnating the wooden elements obtained from step a) with a mixture comprising at least one water-borne wood preservative and ~~polymerizable~~ cross-linkable polymer having cross-linkable reactive groups ~~having a reactive double bond, identical or different~~ selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group, that will-can form a cross-linked polymer under ~~polymerizing~~ cross-linking condition, and

bb2) heating the wooden elements obtained from step bb1) at a temperature of at least 51°C to fix said wood preservative(s) and to ~~polymerize~~ cross-link said reactive groups.

28. (Previously Presented) Process according to claim 26, wherein the impregnation step b1) is carried out with a solution containing a wood preservative in an amount up to 2.5% in weight.

29. (Currently Amended) Process according to claim 26, wherein the impregnation step b3) is carried out with a solution containing 5 to 12% in weight of ~~polymerizable~~ cross-linkable polymer having cross-linkable reactive groups ~~having a reactive double bond~~ selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group.

30. (Previously Presented) Process according to claim 29, wherein the solution of step b3) further comprises from 0.04 to 0.12% in weight of the wood preservative of step b1).

31. (Currently Amended) Process according to claim 27, wherein the impregnation step bb1) is carried out with a solution comprising from 2 to 5% in weight of ~~polymerizable~~ cross-linkable polymer having cross-linkable reactive groups ~~having a reactive double bond~~ selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group, from 2.0 to 2.6 % in weight of the wood preservative.

32. (Previously Presented) Process according to claim 26, further comprising a cooling step of the wooden elements obtained from step b2) carried out for a period of at least 1 to 12 hours.

33. (Previously Presented) Process according to claim 25, wherein the process further comprises after step b4) or bb2), a drying steps of the wooden elements obtained from steps b4) or bb2).

34. (Canceled)

35. (Currently Amended) Process according to claim ~~[[34]]~~ 25, wherein the water-borne wood preservative is selected from the group consisting of Ammoniacal Copper Quat., copper azole, Ammoniacal Copper Arsenate and Chromated Copper Arsenate.

36-37. (Canceled)

38. (Currently Amended) Process according to claim ~~[[37]]~~ 46, wherein said ~~reactive groups cross-linkable polyethylene glycol~~ are is polyethylene glycol diacrylate or polyethylene glycol methacrylate.

39. (Currently Amended) Process according to claim 38, wherein said ~~reactive groups are~~ polyethylene glycol diacrylate or polyethylene glycol methacrylate, ~~having~~ has a molecular weight between 600 and 10000.

40. (Previously Presented) Process according to claim 25, wherein the moisture content of the wooden element obtained from step a) is comprised between 15 and 35%.

41. (Previously Presented) Process according to claim 40, wherein the moisture content of the wooden element obtained from step a) is comprised between 24 and 26%.

42. (Previously Presented) Process according to claim 25, wherein the drying step a) is selected from the group consisting of kiln drying, air drying and air seasoning.

43. (Previously Presented) Process according to claim 25, wherein the amount of the wood preservative impregnated in the wooden elements is superior or equal to  $9.6 \text{ kg/m}^3$ , according to a standardized assay zone for analytical purposes as defined in CSA-O80 and AWWPA C-4 standards.

44. (Currently Amended) Process according to claim 25, wherein the amount of the ~~polymerizable reactive groups~~ cross-linkable polymer impregnated in at least 13 mm outer portion of the wooden elements is between 10 and  $40 \text{ kg/m}^3$  of the wooden elements.

45. (Previously Presented) Treated wooden elements obtained according to the process of claim 25.

46. (New) Process according to claim 29, wherein the cross-linkable polymer is a cross-linkable polyethylene glycol.